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10/786,505

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Richard W. Gross

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Patrick W. Rasche
Armstrong Teasdale LLP
One Metropolitan Square, Suite 2600
St. Louis, MO 63102

EXAMINER

RAGHU, GANAPATHIRAM

ART UNIT

PAPER NUMBER

1652

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/786,505

Applicant(s)

GROSS ET AL.

Examiner

Ganapathirama Raghu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17, 21-24, 26 and 32-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 16, 17, 37 and 40 is/are rejected.
- 7) ☒ Claim(s) 3, 7, 8, 34, 35 and 40-48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: SEQ ALIGNMENT.

DETAILED ACTION

Claims 1-17, 21-24, 26 and 32-48 are pending in this application and claims 1-5, 7-9, 16-17, 37 and 40 are now under consideration for examination. Claims 6, 10-15, 21-24, 26, 32-36, 38-39 and 41-48 are withdrawn as they are drawn to non-elected inventions.

Election/Restrictions

Applicants' election with traverse of Group I, claims 1-17, 21-24, 26 and 32-48 and SEQ ID NO: 6 for prosecution in their response dated 10 July 2006 is acknowledged. The traversal is on the grounds that the examination of the entire application can be made without serious search burden and have requested for examination of all the claims. Applicants' arguments have been considered, however examiner respectfully disagrees for the following reasons. The Office had in the letter dated 11 April, 2006 clearly provided the reasons that the inventions are distinct and demonstrated that the inventions have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated was proper. The claims are drawn to different polynucleotides either encoding polypeptides of different sizes and structure as a result of alternative splicing or polynucleotides that correspond to transcription initiation sites and not encoding any polypeptide but correspond to transcription factor binding sites (promoter regions) and as such claims cover disparate subject matter and are distinct. Furthermore, searching structurally distinct molecules like polynucleotides of group I and the polypeptides of group II are not coextensive and involves search of different databases and non-patent literature, as prior to the concomitant isolation and expression of the sequence of interest, there may be scientific journal articles devoted solely to the polypeptides which would not have

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described the polynucleotide and moreover the polypeptides may have been isolated by biochemical means as opposed to the expression of polypeptide through recombinant methods. Therefore, for the above cited reasons searching of all claims is a serious search burden and contrary to applicant's argument, the requirement is still deemed proper and is therefore made FINAL.

Drawings

Drawings are accepted for examination purposes only.

Claim Objection

Claims 3, 6-9 and 40 are objected, due to the following informality: The said claim contains non-elected subject matter (non-elected SEQ ID NOs.).

Claims 37 and 40 are objected to, due to the following informality: Claims 37 and 40 uses abbreviations iPLA₂γ in the claims, claim 37 recites the abbreviation γMHC and TGiPLA₂γ and claim 40 recites pEF. Examiner suggests at least in the first recitation of the abbreviation, expanding them to recite the full forms of what the abbreviation stands for. Appropriate correction is required.

Claim Rejections: 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 1 and claims 2-5 and 16-17 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In Claim 1 the inclusion of SEQ ID NO: 1 in parenthesis is confusing as it is unclear if what is within the parenthesis is a limitation of the claim or not. In the instant case it is assumed to not limit the claim to SEQ ID NO: 1. Clarification is required.

Claim 1 and claims 2-5 and 16-17 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the "...phrase phospholipase A2 γ polypeptide...", what characteristics define phospholipase A2 γ or distinguish the said polypeptide from other phospholipase A2?. Clarification is required.

Claim 7 and claim 8 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites the phrase "...90% identity with SEQ ID NO: 6...", the metes and bounds of the phrase is not clear and the examiner suggests changing the phrase to "...90% sequence identity to SEQ ID NO: 6. Correction is required.

Claim 7 and claim 8 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 is rejected for the phrase "...has or modulates...", as the metes and bounds are not clear. It is not clear to the examiner the scope of

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the term “modulates” as to what the intended modulation is and compared to what? is encompassed in the claim. Clarification is required.

Claim 16 and claim 17 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 recites “...suitable for vectoring...”, this is grammatically/scientifically awkward. Examiner suggests amending the claim “...suitable for generating a transgenic mouse...”. Correction is required.

Claim 16 and claim 17 depending therefrom rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 recites “...the reporter gene...”, there is no antecedent basis for “reporter”. Correction is required.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 17 recites “a method in accordance with claim 16...”, Claim 16 is directed to a product-vector and not a method. Clarification is required.

Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 40 recites “a truncated iPLA₂γ...” but includes SEQ ID NO: 6 in

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parenthesis SEQ ID NO: 6 is disclosed as full-length, how can this be a truncated iPLA₂ γ sequence?. Clarification is required.

Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In Claim 40 the inclusion of SEQ ID NOs: 6, 15, 18 and 21 in parenthesis is confusing as it is unclear if what is within the parenthesis is a limitation of the claim or not. In the instant case it is assumed to not limit the claim to SEQ ID NO: 6. Clarification is required.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2, 4-5, 16-17 and 40 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-2, 4-5, 16-17 and 40 are directed to any isolated nucleic acid comprising a polynucleotide encoding a phospholipase A₂ γ or an in vitro expression construct in which any truncated iPLA₂ γ of any length is cloned downstream from the SV 40 promoter of vector pEF. Claims 1-2, 4-5, 16-17 and 40 are rejected under this section 35 U.S.C. 112, because the claims are directed to a genus of polynucleotides and encoding polypeptides, having phospholipase A₂ γ

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activity and an in vitro expression construct which encoding a truncated iPLA2 γ cloned downstream from the SV 40 promoter of vector pEF, with no support in the specification for the structural details of all species of genus associated with the function i.e., phospholipase A2 γ activity, has been provided in the specification for the claims. The specification discloses the isolation of a polynucleotide with SEQ ID NO: 6 and encoding a polypeptide of SEQ ID NO: 1 having phospholipase A2 γ activity, vector, host cell, method of making said polypeptide. No information, beyond the characterization of the polynucleotide with SEQ ID NO: 6 and encoding a polypeptide of SEQ ID NO: 1 having phospholipase A2 γ activity, has been provided by the applicants, which would indicate that they had possession of claimed a genus of polynucleotides and encoded polypeptides with phospholipase A2 γ activity or capable of modulating any undefined enzymic activity, vector, an isolated host cell and method of making said polypeptides. The specification does not contain any disclosure of the sequence and structure of all the polynucleotides and encoding polypeptides within the scope of the claimed genus. The disclosed information is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus of polypeptides. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed. Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 7 and 9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such away as to reasonably convey to one

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skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 7 and 9 are directed to an isolated nucleic acid comprising a polynucleotide having at least about 90% identity to SEQ ID NO: 6 wherein said protein has or modulates PLA₂ γ or an antisense sequence that specifically hybridizes to SEQ ID NO: 6. Claims 7 and 9 are rejected under this section 35 U.S.C. 112 because the claims are directed to a “genus” of polynucleotides encoding polypeptides with no specific function. No description of identifying characteristics or functional characterization recognizing all of the sequences i.e., polynucleotides encoding polypeptides that has or modulates any enzymatic activity has been provided in the specification for the claims. The specification discloses the isolation of an only a single polynucleotide of SEQ ID NO: 6 encoding a polypeptide determined to have the phospholipase A₂ γ activity comprising the amino acid sequence of SEQ ID NO: 1. No information, beyond the characterization of the phospholipase A₂ γ mentioned above has been provided by the applicants, which would indicate that they had possession of the claimed genus polynucleotides encoding polypeptides that has or modulates any enzymatic activity. The specification does not contain any disclosure of the sequence and function of all the polynucleotides and encoding polypeptides within the scope of the claimed genus. The disclosed information is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed. Applicant is referred to the revised guidelines concerning compliance with

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the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 1-2, 4-5, 7, 9, 16-17 and 40 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polynucleotide of SEQ ID NO: 6 or encoding a polypeptide of SEQ ID NO: 1 having phospholipase A2 γ activity, vector, an isolated host cell, method of making said polypeptide, does not reasonably provide enablement for any polynucleotide encoding any phospholipase A2 γ or any polynucleotide encoding a phospholipase A2 γ wherein the isolated polynucleotide sequence has at least 90% sequence identity to SEQ ID NO: 6 or any polynucleotide comprising any fragment length of SEQ ID NO: 6 and encodes a polypeptide with phospholipase A2 γ activity or capable of modulating any undefined enzymic activity or any fragment which will specifically hybridize to said polynucleotides, vector, host cell and method of making said polypeptide. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with the claims.

Factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* (858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claim(s).

Claims 1-2, 4-5, 7, 9, 16-17 and 40 are so broad as to encompass any polynucleotide encoding any phospholipase A2 γ or any polynucleotide encoding a phospholipase A2 γ wherein the isolated polynucleotide sequence has at least 90% sequence identity to SEQ ID NO: 6 or any polynucleotide comprising any fragment length of SEQ ID NO: 6 and encodes a polypeptide with phospholipase A2 γ activity or capable of modulating any undefined enzymic activity or any fragment which will specifically hybridize to said polynucleotides, vector, host cell and method of making said polypeptide. The scope of the claims are not commensurate with the enablement provided by the disclosure with regard to the extremely large number of polynucleotides and encoding polypeptides broadly encompassed by the claims. Since the amino acid sequence of a protein encoded by a polynucleotide determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires knowledge and guidance with regard to which amino acids in the protein's sequence and the respective codons in its polynucleotide, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the encoded proteins' structure relates to its function. However, in this case the disclosure is limited to a polynucleotide with SEQ ID NO: 6 and encoding a polypeptide of SEQ ID NO: 1 having phospholipase A2 γ activity, vector, an isolated host cell, method of making said polypeptide, but provides no guidance with regard to the making of other variants and mutants or with regard to other uses such as modulating the activity of any undefined enzymic activity. In view of the great breadth of the claims, amount of experimentation required to make the claimed polypeptides, the lack of guidance, working examples, and unpredictability of the art in predicting function from a polypeptide primary

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structure (e.g., see Ngo et al. in *The Protein Folding Problem and Tertiary Structure Prediction*, 1994, Merz et al. (ed.), Birkhauser, Boston, MA, pp. 433 and 492-495), the claimed invention would require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the polypeptides encompassed by these claims.

While enzyme isolation techniques, recombinant and mutagenesis techniques are known, and it is not routine in the art to screen for multiple substitutions or multiple modifications as encompassed by the instant claims, the specific amino acid positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions or deletions.

The specification does not support the broad scope of the claims which encompass all modifications of any isolated polynucleotide encoding any phospholipase A2 γ or any polynucleotide encoding a phospholipase A2 γ wherein the isolated polynucleotide sequence has at least 90% sequence identity to SEQ ID NO: 6 or any polynucleotide comprising any fragment length of SEQ ID NO: 6 and encodes a polypeptide with phospholipase A2 γ activity or capable of modulating any undefined enzymic activity or any fragment which will specifically hybridize to said polynucleotides, vector, host cell and method of making said polypeptide, because the specification does not establish: (A) regions of the polynucleotide/protein structure which may be modified without affecting the activity of encoded phospholipase A2 γ or the property of modulating any undefined enzymic activity; (B) the general tolerance of the polypeptide and the

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polynucleotide encoding phospholipase A2 γ to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any amino acid residue or the respective codon in the polynucleotide with an expectation of obtaining the desired biological function; (D) a truncated nucleic acid molecule of any fragment length of SEQ ID NO: 6 and encodes a polypeptide with phospholipase A2 γ activity or capable of modulating any undefined enzymic activity and (E) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including polynucleotides with an enormous number of modifications. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of polypeptides having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, because, while claim 5 is enabling for an isolated host cell transformed with the synthetic nucleic acid i.e., for a polynucleotide with SEQ ID NO: 6 and encoding a polypeptide of SEQ ID NO: 1 having phospholipase A2 γ activity, vector, an isolated host cell, method of making said polypeptide, does not reasonably provide enablement for transgenic multi-cellular organisms or host cells within a multi-cellular organism that have been

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transformed with said synthetic nucleic acid. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Claim 5 is so broad as to encompass host cells transformed with specific nucleic acids, including cells in *in vitro* culture as well as within any multi-cellular organism. The scope of the claims are not commensurate with the enablement provided by the disclosure with regard to extremely large number of transformed host cells broadly encompassed by the claim. While methods for transforming cells *in vitro* are well known in the art, methods for successfully transforming cells within complex multi-cellular organisms are not routine and are highly unpredictable. Furthermore, methods for producing a successfully transformed cell within the multi-cellular organism are unlikely to be applicable to transformation of other types of multi-cellular organism as multi-cellular organisms vary widely. However, in this case the disclosure is limited to only isolated host cells *in vitro*. Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including the use of host cells within a multi-cellular organism for the production of polypeptide. The scope of claim must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA)). Without sufficient guidance, expression of genes in a particular host cell and having the desired biological characteristics is unpredictable, the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F. 2d 731, 8 USPQ 2nd 1400 (Fed. Cir., 1988). It is suggested that the applicants limit the claims to “An isolated host cell ...”.

Claim Rejections 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-5, 7, 9 and 40 are rejected under 35 U.S.C. 102(a) as being anticipated by Tanaka et al., (Biochem. Biophysical Res. Commun., 2000, Vol. 272: 320-326, published June 07, 2000). Claims 1-5, 7-9 and 40, are directed to an isolated nucleic acid molecule comprising the polynucleotide encoding a phospholipase A2 γ polypeptide of SEQ ID NO: 1, vector, isolated host cell, said polynucleotide comprises the nucleotide sequence of SEQ ID NO: 6 or having about 90% sequence identity to SEQ ID NO: 6 and an in vitro expression construct in which a truncated nucleic acid molecule of SEQ ID NO: 6 is cloned into an expression vector. Tanaka et al., (*supra*) teach the isolation of a polynucleotide from human that has 90.8% homology to SEQ ID NO: 6 of the instant application and encoding a polypeptide having phospholipase A2 γ activity that has 100% homology to SEQ ID NO: 1 of the instant application (see sequence alignment provided). Furthermore, the reference also teaches the recombinant expression constructs (expression vector pEF-BOS-FF driven by SV 40 promoter), host cells and method of making said polypeptide including isolation of truncated EST clones of said polynucleotide (Materials and Methods, page 320 and Results and Discussion, pages 321-324) and therefore, Tanaka et al., anticipate claims 1-5, 7, 9 and 40 as written.

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Claims 1-5, 7, 9 and 40 are rejected under 35 U.S.C. 102(a) as being anticipated by Mancuso et al., (JBC., 2000, Vol. 275 (14): 9937-9945, published April 07, 2000). Claims 1-5, 7-9 and 40, are directed to an isolated nucleic acid molecule comprising the polynucleotide encoding a phospholipase A2 γ polypeptide of SEQ ID NO: 1, vector, isolated host cell, said polynucleotide comprises the nucleotide sequence of SEQ ID NO: 6 or having about 90% sequence identity to SEQ ID NO: 6 and an in vitro expression construct in which a truncated nucleic acid molecule of SEQ ID NO: 6 is cloned into an expression vector. Mancuso et al., (*supra*) teach the isolation of a polynucleotide from human that has 100% homology to SEQ ID NO: 6 of the instant application and encoding a polypeptide having phospholipase A2 γ activity that has 100% homology to SEQ ID NO: 1 of the instant application (see sequence alignment provided). Furthermore, the reference also teaches the recombinant expression constructs (expression vector pFASTBAC driven by SV 40 promoter), host cells and method of making said polypeptide including isolation of truncated EST clones of said polynucleotide (Fig. 1 and Results section, page 9939) and therefore, Mancuso et al., anticipate claims 1-5, 7, 9 and 40 as written.

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Tang et al., (US 6,569,662 B1, publication date May 27, 2003 claiming the priority date of Application No.:

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09/488,725 filed on Jan. 21, 2000). Claim 9 is directed to an antisense sequence which specifically hybridizes to SEQ ID NO: 6 of the instant application. Tang et al., disclose a polynucleotide sequence that has 67.2% homology to SEQ ID NO: 6 and having 99.7% local similarity to region spanning the residues 589-2900 of SEQ ID NO: 6 (see sequence alignment provided). Examiner takes the position that the sequence disclosed by Tang et al., would hybridize to SEQ ID NO: 6 of the instant application and therefore Tang et al., anticipate claim 9 as written.

Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Yue et al., (US PG PUB No.: US 2004/0248243 A1, publication date Dec. 09, 2004 claiming the priority date of Provisional Application No.: 60/177,732 filed on Jan. 21, 2000). Claim 9 is directed to an antisense sequence, which specifically hybridizes to SEQ ID NO: 6 of the instant application. Yue et al., disclose a polynucleotide sequence that has 80.2% homology to SEQ ID NO: 6 and having 99.7% local similarity to region spanning the residues 384-3138 of SEQ ID NO: 6 (see sequence alignment provided). Examiner takes the position that the sequence disclosed by Yue et al., would hybridize to SEQ ID NO: 6 of the instant application and therefore Yue et al., anticipate claim 9 as written.

Claim Rejections: 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 7-9, 16-17, 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al., (Biochem. Biophysical Res. Commun., 2000, Vol. 272: 320-326, published June 07, 2000) or Mancuso et al., (JBC., 2000, Vol. 275 (14): 9937-9945, published April 07, 2000) and further in view of McTiernan et al., (US Patent No.: 5,917,123, date of patent Jun. 29, 1999). Claims 1-5, 7-9, 16-17, 37 and 40 are directed to an isolated nucleic acid molecule comprising the polynucleotide encoding a phospholipase A2 γ polypeptide of SEQ ID NO: 1, vector, isolated host cell, said polynucleotide comprises the nucleotide sequence of SEQ ID NO: 6 or having about 90% sequence identity to SEQ ID NO: 6 and an in vitro expression construct in which a truncated nucleic acid molecule of SEQ ID NO: 6 is cloned into an expression vector (Claims 1-5, 7-9 and 40) and further a vector comprising the nucleic acid molecule of claim 1 for vectoring into a transgenic mouse wherein the reporter gene encodes luciferase and said transgenic construct contains the γ MHC promoter upstream of SEQ ID NO: 6 for myocardial specific expression of encoded polypeptide phospholipase A2 γ .

Tanaka et al., and Mancuso et al., (*supra*) (see 102(a) rejections above as it applies to claims 1-5, 7-9 and 40) disclose polynucleotide encoding a phospholipase A2 γ polypeptide having 100% sequence identity to SEQ ID NO: 1 of the instant application, expression vector and isolated host cell. However, said references are silent on a vector comprising the nucleic acid molecule of claim 1 of the instant application for generating a transgenic mouse wherein the reporter gene encodes luciferase and said transgenic construct contains the γ MHC promoter upstream of SEQ ID NO: 6 (encoding polynucleotide) for myocardial specific expression of encoded polypeptide phospholipase A2 γ (claims 16-17 and 37).

McTiernan et al., (*supra*) teach transgenic vector constructs comprising different MHC promoters driving the gene of interest including the reporter gene luciferase, specifically for expression of gene of interest in cardiac tissues and also method for generating a transgenic mouse with said constructs.

The instant invention relates to phospholipases and particularly, to novel calcium-independent phospholipase A2 γ polypeptides and to nucleic acids encoding these polypeptides, as well as to methods of making and using these nucleic acids and polypeptides as transgenic vector constructs comprising luciferase reporter gene.

Combining the teachings of the above references, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to develop a transgenic mouse expressing the gene of interest, the polynucleotide of SEQ ID NO: 6 encoding the polypeptide of SEQ ID NO: 1, said polypeptide having phospholipase A2 γ activity, as there is evidence in literature for the connection between phospholipase activation, disease condition and tissue injury. One of ordinary skill in the art would have been motivated to make a transgenic mouse

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expressing phospholipase A2 γ under the control of promoters that are specifically active in expressing gene of interest in cardiac tissues, as an animal model system to study the role of phospholipase A2 γ in disease progression and drug discovery. One of ordinary skill in the art would have had a reasonable expectation of success, since the references of Tanaka et al., and Mancuso et al., cited above teach the isolation of a polynucleotide encoding the polypeptide having phospholipase A2 γ activity and 100% sequence homology to SEQ ID NO: 1 of the instant application, and the teachings McTiernan et al., provide methods for generating transgenic mouse with specific expression of gene of interest in cardiac tissues.

Therefore, the above references render claims 1-5, 7-9, 16-17, 37 and 40 *prima facie* obvious to one of ordinary skill in the art.

Conclusion

None of the claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathirama Raghu whose telephone number is 571-272-4533. The examiner can normally be reached on 8 am - 4.30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/786,505

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Art Unit: 1652

Ganapathirama Raghu, Ph.D.

Patent Examiner

Art Unit 1652

July 23, 2006.


REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP 1600
1600

D5	2341	TAATTTAGATTCAATCTGTGTAATGTGTGAACAATACCTCTAGATGAAGTCCGAATGAA	2400
QY	2401	AAGCTGGATCAGCTGCGATTGGAAGGGTGTGAAATACATAGAAAAGAAATGAACAAAAAATG	2460
Db	2401	AAGCTGGATCAGCTGCGATTGGAAGGGTGTGAAATACATAGAAAAGAAATGAACAAAAAATG	2460
QY	2461	AAAAAAGTTTCGAAAAATATTAAGTCAAGAAAAACAACCTCGAGAAAAATTAATGATTGG	2520
Db	2461	AAAAAAGTTTCGAAAAATATTAAGTCAAGAAAAACAACCTCGAGAAAAATTAATGATTGG	2520
QY	2521	ATAAAAATAAAACTGATATGTATGAAGGACTTCCATTTCTTTTCAAAATTTGTCATGAGTA	2580
Db	2521	ATAAAAATAAAACTGATATGTATGAAGGACTTCCATTTCTTTTCAAAATTTGTCATGAGTA	2580
QY	2581	TATGCTTATGTTCTTCATAAATGAAGGCTCTGTTTAGAAGATCAACCAATTCATTAAGGAA	2640
Db	2581	TATGCTTATGTTCTTCATAAATGAAGGCTCTGTTTAGAAGATCAACCAATTCATTAAGGAA	2640
QY	2641	TTGTGGGTTTCGACATGAGTTAACTTTGAAATACGTATGAAATCTCGAGAACTCCTGAAA	2700
Db	2641	TTGTGGGTTTCGACATGAGTTAACTTTGAAATACGTATGAAATCTCGAGAACTCCTGAAA	2700
QY	2701	AGACGCTGCTTCAACCGACTTGCATAGCAGAGAAATATCTTGGTTACAGAAATTCATAT	2760
Db	2701	AGACGCTGCTTCAACCGACTTGCATAGCAGAGAAATATCTTGGTTACAGAAATTCATAT	2760
QY	2761	GGAACTAGGCTTTTAAATGTTTAAATAGCTAAGCTTTAGTAACCCCTTACTGTGCTA	2820
Db	2761	GGAACTAGGCTTTTAAATGTTTAAATAGCTAAGCTTTAGTAACCCCTTACTGTGCTA	2820
QY	2821	GTAGATTTTAGTAGATATGCTGTTATATGTTTGATGTTTGAAATATATTAATATATG	2880
Db	2821	GTAGATTTTAGTAGATATGCTGTTATATGTTTGATGTTTGAAATATATTAATATATG	2880
QY	2881	TGCCGAACAAGAAACCGAAGCTATATGTACTGTGTTATTTTACTTTAGTCTCCTATAAT	2940
Db	2881	TGCCGAACAAGAAACCGAAGCTATATGTACTGTGTTATTTTACTTTAGTCTCCTATAAT	2940
QY	2941	CATGTTGAAATTTATGTGATCATGATTGTTATTTTCATATGGAAGCTAAATTTCTCTTAA	3000
Db	2941	CATGTTGAAATTTATGTGATCATGATTGTTATTTTCATATGGAAGCTAAATTTCTCTTAA	3000
QY	3001	ATTTACATTTACCTTAATTTCTCAGTACTGATGCTCTCCAAATCCACACTGCCCTTTATTGT	3060
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Db	3061	AATATCATCTAAATAGATGCAGAAAAATGGAATTTCTCTATTTAAAGTATTTTACATTTTG	3120
QY	3121	ACATAAAAAAGAACCCAGATACAGTTTTCTTATTCAGATATGTTTATTTTAACTATGTTTG	3180
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QY	3181	TTAAAAAAGGTTGAAGTTTCAGTCAACCACTTTTACCCCTGAAATTTCAAGATATGCTA	3240
Db	3181	TTAAAAAAGGTTGAAGTTTCAGTCAACCACTTTTACCCCTGAAATTTCAAGATATGCTA	3240
QY	3241	TATTAACCTTTTCAGATCTAAAGTCTGATTTCTTTCCCTGTTATATAATGGTTTCAACT	3300
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```

US-10-181-069-19
; Sequence 19, Application US/10181069
; Publication No. US20040248243A1
; GENERAL INFORMATION:
; APPLICANT: INCYTE GENOMICS, INC.
; APPLICANT: YUE, Henry
; APPLICANT: HILLMAN, Jennifer L.
; APPLICANT: BAUGHN, Mariah R.
; APPLICANT: TANG, Y. Tom
; APPLICANT: AZIMZAI, Yalda
; APPLICANT: GANDHI, Aimesha
; APPLICANT: LU, Dyoung Aina M.
; APPLICANT: NGUYEN, Dannel
; APPLICANT: WALIA, Narinder
; TITLE OF INVENTION: LIPID METABOLISM ENZYMES
; FILE REFERENCE: PI-0015 PCT
; CURRENT APPLICATION NUMBER: US/10/181.069
; CURRENT FILING DATE: 2002-07-11
; PRIOR APPLICATION NUMBER: 60/177,732
; PRIOR FILING DATE: 2000-01-21
; PRIOR APPLICATION NUMBER: 60/178,895
; PRIOR FILING DATE: 2000-01-28
; PRIOR APPLICATION NUMBER: 60/181,863
; PRIOR FILING DATE: 2000-02-11
; PRIOR APPLICATION NUMBER: 60/183,663
; PRIOR FILING DATE: 2000-02-17
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: PERL Program
; SEQ ID NO 19
; LENGTH: 2756
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: misc_feature
; OTHER INFORMATION: Incyte ID No: 54768641CB1
US-10-181-069-19

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Query Match      80.2%; Score 2742.2; DB 9; Length 2756;
Best Local Similarity 99.7%; Pred. No. 0;
Matches 2747; Conservative 0; Mismatches 8; Indels 0;
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444	Qy	TCCAAGCAACCATGGTTTACATATTGGATTTTGAACACTTAGCACTCTGCTCCCAAGG	503
61	Db	TCCNAGCAACCATGGTTTACATATTGGATTTTGAACACTTAGCACTCTGCTCCCAAGG	120
504	Qy	ACTTACAAAAGTGAACATTTGTATGTCCCGTATTAAAGTAGTACTTTGAACCTCTGTTTCAAA	563
121	Db	ACTTACAAAAGTGAACATTTGTATGTCCCGTATTAAAGTAGTACTTTGAACCTCTGTTTCAAA	180
564	Qy	GGCTGTTTTTGGCAATCAAAATGAAATGATTTACAGTTTAGCTCAATTTAAGCCAAAGTTC	623
181	Db	GGCTGTTTTTGGCAATCAAAATGAAATGATTTACAGTTTAGCTCAATTTAAGCCAAAGTTC	240
624	Qy	CCAAATTTTAAAGAAAAGTATCGGATAGTGGCTGGTTAAAAACAGAAAAACATCAAAACAAGC	683
241	Db	CCAAATTTTAAAGAAAAGTATCGGATAGTGGCTGGTTAAAAACAGAAAAACATCAAAACAAGC	300
684	Qy	CATCAAAATCTTGAAAAAATATAGTGACAAATCAGCAGAAAAAGAGTGCTTTTTTCGAAAGA	743
301	Db	CATCAAAATCTTGAAAAAATATAGTGACAAATCAGCAGAAAAAGAGTGCTTTTTTCGAAAGA	360
744	Qy	GAAGAAGTCACATTATAGACACAAAGAAAGATATAGGTAAAAACGCAAGTCTTTTTTCATTACAC	803
361	Db	GAAGAAGTCACATTATAGACACAAAGAAAGATATAGGTAAAAACGCAAGTCTTTTTTCATTACAC	420
804	Qy	AAAGTCTTATAACGACAAAAATTTGGAGACTCAATCTACTCTTTTATCAAAATCATATTAATTC	863
421	Db	AAAGTCTTATAACGACAAAAATTTGGAGACTCAATCTACTCTTTTATCAAAATCATATTAATTC	480


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Db 2641 CTAGCTATGTTCTCCAACTCCACGCTGCTTTTATTTGTAATATCATCTAAATAGATGCAGA 2700
Qy 3084 AAAATGGAATTTCTCTATTAAAGTATTTTACATTTGACATATAAAAGAACGAGA 3138
Db 2701 AAAATGGAATTTCTCTATTAAAGTATTTTACATTTGACATATAAAAGAACGAGA 2755

RESULT 3
US-10-786-505-13
; Sequence 13, Application US/10786505
; Publication No. US2005003388A1
; GENERAL INFORMATION:
; APPLICANT: GROSS, RICHARD W.
; APPLICANT: DAVID J. MANCUSO
; TITLE OF INVENTION: CALCIUM INDEPENDENT PHOSPHOLIPASE A2Y POLYNUCLEOTIDES
; FILE REFERENCE: 15060-58
; CURRENT APPLICATION NUMBER: US/10/786,505
; PRIOR FILING DATE: 2004-02-25
; PRIOR APPLICATION NUMBER: 09/168,623
; PRIOR FILING DATE: 2000-07-18
; NUMBER OF SEQ ID NOS: 104
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 13
; LENGTH: 2349
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)..(2346)
US-10-786-505-13

Query Match 68.7%; Score 2349; DB 9; Length 2349;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 2349; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 226 ATGCTCTATTAACTGACTGATGATATATATTTTACCTCTCTAGTAAATGCAAGAGTGT 285
Db 1 ATGCTCTATTAACTGACTGATGATATATATTTTACCTCTCTAGTAAATGCAAGAGTGT 60

Qy 286 TGTGGGAAGCAGAGAAAGCAAGCACTGTTTCTGTTCTCCTCAAGCAATTTACTGGAGG 345
Db 61 TGTGGGAAGCAGAGAAAGCAAGCACTGTTTCTGTTCTCCTCAAGCAATTTACTGGAGG 120

Qy 346 ATAAGCCACATCAGTCTCAAGAGAGTGTTCATACAAATATAAGATGTAATGAGACC 405
Db 121 ATAAGCCACATCAGTCTCAAGAGAGTGTTCATACAAATATAAGATGTAATGAGACC 180

Qy 406 AAAAGTGAAGCACATTTCTGCAAGTACGCTGTTTCTCCTCAAGCAATTTACTGGAT 465
Db 181 AAAAGTGAAGCACATTTCTGCAAGTACGCTGTTTCTCCTCAAGCAATTTACTGGAT 240

Qy 466 ATTGGGATTTTGAATCTTAGCACTTCTGCTCCCAAGGAGCTTACAAAGTGAACATTTGT 525
Db 241 ATTGGGATTTTGAATCTTAGCACTTCTGCTCCCAAGGAGCTTACAAAGTGAACATTTGT 300

Qy 526 ATGTCCTGATTTAAAGTACTTTGAACTCTGTTTCAAGAGTGTGTTTGGAAATCAAAAT 595
Db 301 ATGTCCTGATTTAAAGTACTTTGAACTCTGTTTCAAGAGTGTGTTTGGAAATCAAAAT 360

Qy 586 GAAATGATTTACGTTTACGTTTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGT 645
Db 361 GAAATGATTTACGTTTACGTTTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGT 420

Qy 646 GATAGTGGCTGTTTAAAGCAAGAAACATCAAAAGCAAGCAATCAAAATCTCTGAAAGAAATAT 705
Db 421 GATAGTGGCTGTTTAAAGCAAGAAACATCAAAAGCAAGCAATCAAAATCTCTGAAAGAAATAT 480

Qy 706 AGTGACAAATCAGCAGAAAGAGTCTCTTTTCCAGAGAGAGAAAGTCAATTTATAGACAAA 765
Db 481 AGTGACAAATCAGCAGAAAGAGTCTCTTTTCCAGAGAGAGAAAGTCAATTTATAGACAAA 540

Qy 766 GAAGAAGATATAGGTAACCGAGTCTTTTTCATTACACAGTCTTATACCAACCAAAATTT 825

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Db 541 GAAGAAGATATAGGTAACCGAGTCTTTTTCATTACCAAGTCTTATACCAACCAAAATTT 600
Qy 826 GGAGACTCAATCTACTTTTATCAAAATCATATTAATTTCAATTTCAAAAGTAAAGGAAAAA 895
Db 601 GGAGACTCAATCTACTTTTATCAAAATCATATTAATTTCAATTTCAAAAGTAAAGGAAAAA 660

Qy 886 ATGCTCTCAACAAAGGAAATGAACATTTCCGGGCAAAATCAGACTTCAAGATTAAGAG 945
Db 661 ATGCTCTCAACAAAGGAAATGAACATTTCCGGGCAAAATCAGACTTCAAGATTAAGAG 720

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Db 841 GTTTCAACTTAACAAAGTATTGCTAACTTTCTCTGCTCCACGGAAGGTGTACAGCT 900

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Db 961 TCAGAAGAACAGGAAAGAGCTGCTGCTAAAAGTATCAGGCTGTGAGCAAGAACAGAAATGCA 1020

Qy 1246 GAGGAGAAAGAGGTTTATCTCTCAGCGAGAAAGATTTATCGAAGGTTGAGTATTGAT 1305
Db 1021 GAGGAGAAAGAGGTTTATCTCTCAGCGAGAAAGATTTATCGAAGGTTGAGTATTGAT 1080

Qy 1306 AACAGAGACCCGGGCAATTTAGTTCAGGCAATTAAGAAGAACAACTGACCCAAAGCTCTGCATT 1365
Db 1081 AACAGAGACCCGGGCAATTTAGTTCAGGCAATTAAGAAGAACAACTGACCCAAAGCTCTGCATT 1140

Qy 1366 ACTAGGTTGAAGAACTGACTTTTCTCTAGAAATTTCTGGAAGAAAGAGTGGCT 1425
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Qy 1426 GTCAAGGAAGAAATTTATCCATTTTATACCACTGAGAAATTAAGAGATGAATCTTT 1485
Db 1201 GTCAAGGAAGAAATTTATCCATTTTATACCACTGAGAAATTAAGAGATGAATCTTT 1260

Qy 1486 CAGGCTGCAAGTGAAGAAATTTTGGCCCTAATTTGGCTATGTTGATTCAGTGAAGAGGAGA 1545
Db 1261 CAGGCTGCAAGTGAAGAAATTTTGGCCCTAATTTGGCTATGTTGATTCAGTGAAGAGGAGA 1320

Qy 1546 GGAATCCGAATTTCTCTCAATTTGATGGAGAAACAGGGGGGCTGTTGCTCCAGACC 1605
Db 1321 GGAATCCGAATTTCTCTCAATTTGATGGAGAAACAGGGGGGCTGTTGCTCCAGACC 1380

Qy 1606 CTACGAAATTTAGTGAACCTTACTCAGAGCCAGTTCATCAGCTCTTTCATTAACATTTGT 1665
Db 1381 CTACGAAATTTAGTGAACCTTACTCAGAGCCAGTTCATCAGCTCTTTCATTAACATTTGT 1440

Qy 1666 GGTGTAAAGCACAGGTGCGCATTTAGCTTTTCATGTTGGGGTGTTCATATGCTCCCTTGGAT 1725
Db 1441 GGTGTAAAGCACAGGTGCGCATTTAGCTTTTCATGTTGGGGTGTTCATATGCTCCCTTGGAT 1600

Qy 1726 GAATGTAGGAACTTTTATCGAAATTTAGGATCAGATGATTTTTCACAAATATGCTATGTT 1785
Db 1501 GAATGTAGGAACTTTTATCGAAATTTAGGATCAGATGATTTTTCACAAATATGCTATGTT 1560

Qy 1786 GGAACAGTAAATGAGTTGGAGCCATGCAATTTTATGACAGTCAAAACATGGGAAACATTT 1845
Db 1561 GGAACAGTAAATGAGTTGGAGCCATGCAATTTTATGACAGTCAAAACATGGGAAACATTT 1620

Qy 1846 CTTAAGATAGGATGGGATCTGCACTGATGATTAAGAAACAGCAAGAAACCCACATGTCCT 1905

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US 20040248243A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0248243 A1****Yue et al.**(43) **Pub. Date: Dec. 9, 2004**(54) **LIPID METABOLISM ENZYMES****Related U.S. Application Data**

(76) Inventors: **Henry Yue**, Sunnyvale, CA (US);
Jennifer L. Hillman, Mountain View,
CA (US); **Mariah R. Baughn**, San
Leandro, CA (US); **Y. Tom Tang**, San
Jose, CA (US); **Yalda Azimzai**, Castro
Valley, CA (US); **Ameena R. Gandhi**,
San Francisco, CA (US); **Dyung Aina**
M. Lu, San Jose, CA (US); **Danniel B.**
Nguyen, San Jose, CA (US); **Narinder**
K. Wallia, San Leandro, CA (US)

(60) Provisional application No. 60/177,732, filed on Jan.
21, 2000. Provisional application No. 60/178,885,
filed on Jan. 28, 2000. Provisional application No.
60/181,863, filed on Feb. 11, 2000. Provisional appli-
cation No. 60/183,683, filed on Feb. 17, 2000.

Publication Classification

(51) **Int. Cl.⁷** **C12N 9/20; C07H 21/04**
(52) **U.S. Cl.** **435/69.1; 435/198; 435/320.1;**
435/325; 536/23.2

Correspondence Address:

FOLEY AND LARDNER
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007 (US)

(21) **Appl. No.: 10/181,069**(22) **PCT Filed: Jan. 18, 2001**(86) **PCT No.: PCT/US01/02060**(57) **ABSTRACT**

The invention provides human lipid metabolism enzymes (LME) and polynucleotides which identify and encode LME. The invention also provides expression vectors, host cells, antibodies, agonists, and antagonists. The invention also provides methods for diagnosing, treating or preventing disorders associated with aberrant expression of LME.



US006569662B1

(12) **United States Patent**
Tang et al.

(10) **Patent No.:** **US 6,569,662 B1**
(45) **Date of Patent:** **May 27, 2003**

(54) **NUCLEIC ACIDS AND POLYPEPTIDES**

(75) **Inventors:** **Y. Tom Tang**, San Jose, CA (US); **Ping Zhou**, San Jose, CA (US); **Radoje T. Drmanac**, Palo Alto, CA (US)

(73) **Assignee:** **Hyseq, Inc.**, Sunnyvale, CA (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **09/620,312**

(22) **Filed:** **Jul. 19, 2000**

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/552,317, filed on Apr. 25, 2000, now abandoned, which is a continuation-in-part of application No. 09/488,725, filed on Jan. 21, 2000.

(51) **Int. Cl.⁷** **C12N 9/00; C12N 9/14; C12N 9/48; C12N 9/76; C12N 9/74; C12N 9/64; C12N 9/28**

(52) **U.S. Cl.** **435/212; 435/183; 435/195; 435/213; 435/214; 435/218; 435/219; 435/226; 435/227**

(58) **Field of Search** 435/69.1, 252.3, 435/320.1, 183, 212, 219, 226, 213, 214, 218, 227; 536/23.2

(56) **References Cited**

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GenBank Accession No. AF106037 Hattori et al., Nov. 17, 1999.*

* cited by examiner

Primary Examiner—Rebecca E. Prouty

Assistant Examiner—Manjunath N. Rao

(57) **ABSTRACT**

The present invention provides novel nucleic acids, novel polypeptide sequences encoded by these nucleic acids and uses thereof.

2 Claims, No Drawings